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Indiana State Department of Health

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Editor's Note: This issue of the Indiana Epidemiology Newsletter focuses on bioterrorism preparedness in Indiana. This issue is dedicated to our state laboratory professionals who are working extremely long hours to process and test potentially contaminated samples.

Indiana's Bioterrorism Preparedness and Response

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The Indiana State Department of Health (ISDH) has received many inquiries regarding bioterrorism, anthrax and smallpox since the September 11 terrorist attacks. Since the identification of a fatal case of anthrax in Florida and subsequent confirmed exposures, there has been a surge in phone calls and other inquiries regarding anthrax exposure in Indiana.

The ISDH Bioterrorism Working Group, in collaboration with the State Emergency Management Agency, law enforcement agencies, and other organizations, has boosted efforts to collect and distribute information and to develop policies for assessment and mitigation of potential bioterrorist threats. These efforts include:

- Development of a risk assessment protocol for handling suspicious letters and packages and the chain of custody regarding such items (now available on the ISDH website);
- Compilation of information from CDC to assist physicians and hospitals in evaluating patients who present with possible exposure, including a risk assessment form, clinical specimen collection protocols, prophylaxis and treatment guidelines, and reporting procedures (done);
- Distribution of information to microbiology laboratories regarding bioweapon agent identification and specimen submission, with subsequent training sessions (done);
- Development of a risk assessment protocol to assist first responders with on-site assessment (in progress);

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- Creation of case investigation forms for infectious agents that may be used as bioweapons (in progress); and

- Development of a public health emergencies manual that outlines policies and procedures used in various types of disasters, both natural and human-made, with subsequent training sessions (in progress).

Some of these projects have been completed, and others are underway. More information will be forthcoming. In the meantime, information can also be accessed from the following websites:

www.statehealth.in.gov
www.bt.cdc.gov
www.cdc.gov/mmwr
www.apic.org
www.immunize.org/anthrax
www.nlm.nih.gov/medlineplus/biologicalandchemicalweapons.html

On October 11, Governor Frank O'Bannon created the Indiana Counter Counter-Terrorism and Security Council. Lieutenant Governor Joe Kernan will serve as chairman of the council, which is made up of law enforcement and public health officials. Clifford Ong, who has been chairman of the Indiana Alcohol and Tobacco Commission since February 2000, will be the council director. Dr. Gregory A. Wilson, state health commissioner, will serve on the council.

O'Bannon created the council by executive order to coordinate public-safety efforts to detect and prevent terrorist threats or attacks that might occur in Indiana. The council will develop and implement a comprehensive state strategy to address terrorism in Indiana. It will work with federal, state and local public-safety agencies across the state, and will serve as Indiana's liaison to the new federal Office of Homeland Security. It will also coordinate and expand preparedness plans that are already in place.

A Word from the State Health Commissioner

Dr. Gregory A. Wilson

In many ways, we live in a different world than existed a month ago. The cases of anthrax have created extreme anxiety in the general public and stress on the public health system. But it is important to remember that the public health response to bioterrorism relies on the infrastructure and the core functions that have been developed over many years. This crisis has emphasized the importance of local public health systems and the need for integration of services from federal and state to local levels. This is stimulating us to develop better lines of communication, improve our response time, and update our systems.

The goal of terrorism is to produce terror in a population. We cannot let the terrorists succeed in their aim. It is important that we approach bioterrorism in a logical, confident, and coordinated fashion. We must use the lessons that we have learned through years of disaster preparedness training and apply them to this situation. The general public and health professionals must be vigilant but not panic. Where there are problems with the present system, we will work together to make adjustments and improvements to ensure the health of the population, but we will meet this challenge together as a team.

The Indiana State Department of Health (ISDH) is already distributing protocols and recommendations on collection of samples, testing, diagnosis, and treatment. This information is based on recommendations from the Centers for Disease Control and Prevention, and will be updated as we receive new information. We recognize the need to collaborate with other agencies and organizations to provide consistent information to providers and are actively participating in the Counter-Terrorism and Security Council. **We also realize that providers, hospitals, and emergency personnel need a more accessible telephone contact with the ISDH and we have implemented a new emergency response number for health personnel 1-866-233-1237.**

The threat of bioterrorism has pointed out the importance of maintaining a strong infrastructure and integrating local and state systems into a coordinated system. We need to move forward on both implementing new technologies and strengthening our public health programs. I believe that this is the beginning of a much more visible and effective public health system for our state.

How to Handle Anthrax and Other Biological Agent Threats

Many facilities in communities around the United States have received anthrax threat letters. Most were empty envelopes; some have contained powdery substances. The purpose of these guidelines is to recommend procedures for handling such incidents.

DO NOT PANIC

1. Anthrax organisms can cause infection in the skin, gastrointestinal system, or the lungs. To do so, the organism must be rubbed into abraded skin, swallowed, or inhaled as a fine, aerosolized mist. Disease can be prevented after exposure to the anthrax spores by early treatment with the appropriate antibiotics. Anthrax is not spread from one person to another person.
2. For anthrax to be effective as a covert agent, it must be aerosolized into very small particles. This is difficult to do and requires a great deal of technical skill and special equipment. If these small particles are inhaled, life-threatening lung infection can occur, but prompt recognition and treatment are effective.

Suspicious unopened letter or package marked with threatening message such as "Anthrax":

1. Do not shake or empty the contents of any suspicious envelope or package.
2. PLACE the envelope or package in a plastic bag or some other type of container to prevent leakage of contents.
3. If you do not have any container, then COVER the envelope or package with anything (e.g., clothing, paper, trash can, etc.) and do not remove this cover.
4. Then, LEAVE the room and CLOSE the door, or section off the area to prevent others from entering (i.e., keep others away).
5. WASH your hands with **soap and water** to prevent spreading any powder to your face.
6. What to do next…

   - If you are at **HOME**, then report the incident to local police.
   - If you are at **WORK**, then report the incident to local police, **and** notify your building security official or an available supervisor.

7. LIST all people who were in the room or area when this suspicious letter or package was recognized. Give this list to both the local public health authorities and law enforcement officials for follow-up investigation and advice.

Envelope with powder and powder spills out onto surface:

1. DO NOT try to CLEAN UP the powder. COVER the spilled contents immediately with anything (e.g., clothing, paper, trash can, etc.) and do not remove this cover.
2. Then, LEAVE the room and CLOSE the door, or section off the area to prevent others from entering (i.e., keep others away).
3. WASH your hands with **soap and water** to prevent spreading any powder to your face.
4. What to do next…

   - If you are at **HOME**, then report the incident to local police.
   - If you are at **WORK**, then report the incident to local police, **and** notify your building security official or an available supervisor.

5. REMOVE heavily contaminated clothing as soon as possible and place in a plastic bag or some other container that can be sealed. The bag of clothing should be stored in a safe place by the owner until the investigation is completed and instruction for decontamination of the clothing can be provided.
6. SHOWER with **soap and water** as soon as possible. *Do not use bleach or other disinfectant on your skin.*
7. If possible, list all people who were in the room or area, especially those who had actual contact with the powder. Give this list to both the local public health authorities so that proper instructions can be given for medical follow-up and to law enforcement officials for further investigation.

Question of room contamination by aerosolization:

For example: small device triggered, warning that air-handling system is contaminated, or warning that a biological agent has been released in a public space.

1. Turn off local fans or ventilation units in the area.
2. LEAVE the area immediately.
3. CLOSE the door or section off the area to prevent others from entering (i.e., keep others away).
4. What to do next…

   - If you are at **HOME**, then report the incident to local police.
   - If you are at **WORK**, then report the incident to local police, **and** notify your building security official or an available supervisor.

5. SHUT down the air-handling system in the building, if possible.
6. If possible, list all people who were in the room or area. Give this list to both the local public health authorities so that proper instructions can be given for medical follow-up and to law enforcement officials for further investigation.

How to identify suspicious packages and letters:

Some characteristics of suspicious packages and letters include the following:

- Excessive postage
- Handwritten or poorly typed addresses
- Incorrect titles
- Title, but no name
- Misspellings of common words
- Oily stains, discolorations, or odor
- No return address
- Excessive weight
- Lopsided or uneven envelope
- Protruding wires or aluminum foil
- Excessive security material such as masking tape, string, etc.
- Visual distractions

- Ticking sound
- Marked with restrictive endorsements such as "Personal" or "Confidential"
- Shows a city or state in the postmark that does not match the return address

In general, suspicious packages for which there is no reason to suspect chemical or biological substances should be treated according to the guidelines issued by the U.S. Postal Service, which can be found at http://www.usps.gov/postalinspectors/is-pubs.htm. Further guidance can be found at http://www/usps.gov/news/2001press/pr01_1010tips.htm.

Physician Guidelines for Assessment and Prophylaxis of Potential Anthrax Exposure

The following is compiled from the U.S. Centers for Disease Control and Prevention (CDC) to assist physicians in evaluating these patients.

Patient Presentation

Symptoms for **inhalational anthrax** may occur within 1 to 5 days following an exposure to aerosolized spores. Presentation is flu-like with muscle aches, general malaise, and fever. As disease progresses, a widened mediastinum will often be seen on chest x-ray due to bacterial colonization of the tracheobronchial lymph nodes following the transport of the spores by macrophages. There will be pulmonary edema with or without pleural effusion cyanosis, and stridor. Fifty percent of cases may rapidly develop concurrent hemorrhagic meningitis with bloody cerebrospinal fluid. Septicemia and toxic shock will lead to death in 24 to 36 hours. **Gastrointestinal anthrax** presents after ingestion of spores (usually from meat), within 1 to 7 days, as severe abdominal distress followed by fever and signs of septicemia with fatal progression in up to 60 percent of patients. **Cutaneous anthrax** lesion begins, in 1 to 12 days following exposure, as a vesicle and progresses with edema and painless necrotic ulcer with a black eschar base. Pictures of cutaneous anthrax can be viewed at www.bt.cdc.gov. If untreated, 20 percent mortality occurs. In general, anthrax occurs because of environmental exposure to spores. **Human to human contact is not a mode of transmission.**

CDC Recommendations

For asymptomatic patients without known exposure

- Reassure about the rarity of infection
- Discourage use of nasal swabs (see “Clinical Specimens” section below)
- **Do not prescribe Ciprofloxacin in absence of medical criteria**

For asymptomatic patients with potential exposure

- Ascertain the perception of risk – What were the circumstances of exposure? Has an environmental sample been sent to ISDH for analysis? Has law enforcement been notified? (See accompanying "Physician Assessment of Persons Reporting Possible Exposure.")

- *If risk is genuine as documented by other cases or lab reports, provide prophylaxis for 60 days. If circumstances are suspicious but unproven, initiate 7 days of therapy and reassess when more information is available (see accompanying charts for antibiotic dosages).*

- If risk is not credible, release patient with instructions to return immediately if muscle aches with fever do occur.

For symptomatic patients

- Obtain clinical specimens based on the form of anthrax suspected (see "Clinical Specimens" section below).
- Begin intravenous antibiotic therapy immediately for inhalational and gastrointestinal forms, and oral or IV treatment for cutaneous anthrax depending on severity of clinical presentation (see accompanying chart for dosages).

Clinical Specimens

Nasal swabs are not recommended as these are used for epidemiological investigation rather than diagnosis. A negative nasal swab does not rule out infection and therefore is not an effective screening tool. Blood, spinal fluid, and sputum are the usual specimens for inhalational anthrax. Stool (early stage) and blood (later stage) are used for gastrointestinal anthrax. For the cutaneous form, lesions can be sampled by soaking dry sterile swabs in vesicular fluid. At eschar stage, swab samples are obtained beneath the edge of the eschar without removing the eschar.

Indiana clinical labs operate as "Rule Out and Refer" labs. Information about preliminary lab protocols has been forwarded to these labs by ISDH. If your lab needs further information the Microbiology Supervisor should phone 317-233-8008 (in non-business hours, 317-233-1325). Please let your lab know that you suspect anthrax.

Prophylaxis – See accompanying chart, "Post-exposure Prophylaxis (PEP) Recommendations"

Treatment – See accompanying chart, "Anthrax Treatment – Inhalational and Gastrointestinal"

Reporting

Report potential exposures to the local police immediately. Telephone the ISDH immediately if, based on strongly suggestive clinical signs or preliminary test results, you suspect that a patient may have anthrax (business hours, 317-233-7125; or during non-business hours, 317-233-1325). This early report will allow the epidemiological investigation that will identify other persons potentially at risk.

PHYSICIAN ASSESSMENT OF PERSONS REPORTING POSSIBLE EXPOSURE TO ANTHRAX OR OTHER BIOLOGICAL AGENTS

Indiana State Department of Health - October 15, 2001

Patient Name: _____ Medical Record Number:_____

Patient Address:_____ Patient Phone Number:_____

1. Circumstances of possible exposure:

Date_____ Time _____ Location _____

How was the person exposed? (Check all that apply.)

Powder	Letter	Package	Other (Describe)
Appearance?	Unopened?_____ Opened? _____	Unopened? _____ Opened? _____	

2. Where is the suspicious material now? (Note: If brought into health care facility, double bag wearing disposable gloves, and contact local health department.)

3. Was there any advance threat of attack? Yes ___ No ___ If yes, describe:

4. Were law enforcement authorities notified? Yes___ No ___

5. Did an official responder assess the scene? Yes__ No__ If so, what agency? _____
(e.g., fire, police, FBI, public health, etc.)

6. Was decontamination carried out? (Note: Handwashing, removal of outer clothing with placement in impermeable bag with closure, and shower/shampoo with usual products are generally adequate. Chances of reaerosolization of spores are low.) If so, please describe:

7. Are there other perspectives that the patient can share that may help assess the nature of the risk?

Positive answers to these questions help establish a credible risk. Please immediately report any persons likely exposed or showing symptoms to the Indiana State Department of Health (business hours: 317-233-7125, non-business hours: 317-233-1325).

Post-exposure Prophylaxis (PEP) Recommendations

Patient	Initial therapy	Duration
Adults (including pregnant woman [1,2] and immmunocompromised)	Ciprofloxacin 500 mg po BID **Or** ***Doxycycline 100 mg po BID***	60 days for known exposure (7 days for possible exposure. Continue for 60 days if lab results of environmental samples **or** presence of other cases confirm likely exposure)
Children [1,3]	Ciprofloxacin 15-20 mg/kg po Q12 hrs [4] **Or** Doxycycline [5]: >8 yrs and >45 kg: 100 mg po BID >8 yrs and < 45 kg: 2.2 mg/kg po BID < 8 yrs: same as >8 yrs and ≤ 45 kg	As for Adults. See above

Source: Adapted from *CDC Guidelines for State Health Departments*, October 15, 2001

1. **If susceptibility testing allows, therapy should be changed to oral amoxicillin for post-exposure prophylaxis to continue therapy out to 60 days.**
2. **Although tetracyclines are not recommended during pregnancy, their use may be indicated for life-threatening illness. Adverse affects on developing teeth and bones are dose related, therefore, doxycycline might be used for a short course of therapy (7-14 days) prior to the 6th month of gestation. Please consult physician after the 6th month of gestation for recommendations.**
3. **Use of tetracyclines and fluoroquinolones in children has adverse effects. These risks must be weighed carefully against the risk for developing life-threatening disease. If a release of *B. anthracis* is confirmed, children should be treated initially with ciprofloxacin or doxycycline as prophylaxis but therapy should be changed to oral amoxicillin 40 mg/kg of body mass per day divided every 8 hours (not to exceed 500 mg three times daily) as soon as penicillin susceptibility of the organism has been confirmed.**
4. **Ciprofloxacin dose should not exceed 1 gram/day in children.**
5. **In 1991, the American Academy of Pediatrics amended their recommendation to allow treatment of young children with tetracyclines for serious infections, such as, Rocky Mountain Spotted Fever, for which doxycycline may be indicated. Doxycycline is preferred for its twice-a-day dosing and low incidence of gastrointestinal side effects.**

*Anthrax Treatment – Inhalational and Gastrointestinal**

Patient	Initial Treatment	Oral Antibiotics
Adults	Therapy must continue for 60 days because of potential persistence of spores. A switch to oral medication from I.V. administration may occur after 7 days. See next column. • Ciprofloxacin**, 400 mg BID until antibiotic sensitivities known. If sensitive, can switch to: • Penicillin G, 20 million U I.V. per day in divided doses; Erythromycin 15-20 mg/kg/day in divided doses **or** • Doxycycline, 100 mg I.V. every 12 hr	Maintain I.V. doses for seven days. When clinically appropriate a switch to oral antibiotic therapy can complete a 60 day regimen: • Ciprofloxacin 500mg BID. If sensitive, can switch to • Doxycycline 100 mg BID
Pregnant women	• Usual adult doses, begin with Ciprofloxacin*, switch to I.V. Doxycycline, if susceptible strain with periodic liver function testing	• As above except that oral Doxycycline is not recommended for more than 14 days of therapy, If susceptible strain, oral Amoxicillin can be used to complete the 60 days of therapy
Children	Therapy must continue for 60 days because of potential persistence of spores. A switch to oral medication may occur after 7 days. See next column • Ciprofloxacin**, 15 mg/kg I.V. Q12 hr, not to exceed 1 g/day. If sensitive, can switch to: • Penicillin G, 4 00,000 U/kg per day in divided doses Erythromycin 15-20 mg/kg per day in divided doses **or** • Doxycycline*** age and weight adjusted (> 8 yrs and > 45 kg use 100 mg BID; > 8 yrs and < 45 kg use 2.2 mg/kg/day in 2 divided doses; < 8 yrs use 2.2 mg/kg/day in 2 divided doses)	Maintain I.V. doses for seven days. When clinically appropriate, a switch to oral antibiotic therapy can complete a 60 day regimen: • Ciprofloxacin 15-20 mg/kg Q12 hrs not to exceed 1 g/day. If sensitive, can switch to: • Doxycycline age and weight adjusted (doses in column to the left)
Immuno-compromised	• Same as for comparable age group	• Same as for comparable age group

* For cutaneous anthrax choose either IV or oral medication based on the severity of clinical presentation

**Therapy with Ciprofloxacin may be initiated in oral form. The pharmacokinetics of oral Ciprofloxacin permit rapid and adequate absorption from the GI tract with no substantial loss by first-pass metabolism.

***Doxycycline is preferred for its twice-a-day dosing low incidence of GI side effects.

Sources: Inglesby TV et al. *Anthrax as a Biological Weapon*, JAMA 281(18) 1735-1745, 1999; and *Antibiotic Treatment Dosing Guidelines for National Pharmaceutical Stockpile components*. Centers for Disease Control and Prevention. May 2001.

Hospital Guidelines for Patient Evaluation and Clinical Specimen Testing From Potential Anthrax Exposure

The following is compiled from the U.S. Centers for Disease Control and Prevention (CDC). These guidelines provide information about the medical evaluation of patients, the signs and symptoms of anthrax, and guidance for the hospital laboratory on the presumptive identification and handling of possible B. anthracis specimens.

I. Evaluation of Patients

Refer to the article, "Physician Guidelines …" in this issue of the newsletter. This article includes information that physicians and nurses can use when evaluating possible anthrax exposure patients, including a questionnaire that can be used by emergency room staff when assessing the actual level of patient risk. All possible anthrax exposure cases must be tracked for needed follow-up, and this questionnaire can aid other medical and public health authorities in that follow-up.

For asymptomatic patient without known exposure

- Reassure about the rarity of infection
- Discourage use of nasal swabs
- **Do not prescribe Ciprofloxacin in absence of medical criteria**

For asymptomatic patient with potential exposure

- Ascertain the perception of risk – What were the circumstances of exposure? Has an environmental sample been sent to the ISDH for analysis? Has law enforcement been notified? (See accompanying "Physician Assessment of Persons Reporting Possible Exposure.")
- *If risk is genuine as documented by other cases or lab reports, provide prophylaxis for 60 days. If circumstances are suspicious but unproven, initiate 7 days of therapy and reassess when more information is available (Use form: "Physician Assessment of Persons Reporting Possible Exposure".)*
- If risk is not credible, release patient with instructions to return immediately if muscle aches with fever do occur.

For symptomatic patient

- Obtain clinical specimens based on the form of anthrax suspected (see "Clinical Specimens" in the enclosed information).
- Begin intravenous antibiotic therapy immediately for inhalational and gastrointestinal forms, and oral or IV treatment for cutaneous anthrax depending on severity of clinical presentation (see accompanying chart for dosages).

II. Signs and Symptoms of Anthrax Infection

Inhalational anthrax: A brief prodrome resembling a viral respiratory illness followed by development of hypoxia and dyspnea, with radiographic evidence of mediastinal widening. This, the most lethal, form of anthrax results from inspiration of 8,000-40,000 spores of *B. anthracis*. The incubation of inhalational anthrax among humans is unclear, but it is reported to range between 1 and 7 days, possibly ranging up to 42 days. Host factors,

dose of exposure, and chemoprophylaxis may play a role. Initial symptoms include sore throat, mild fever, muscle aches, and malaise. These may progress to respiratory failure and shock. Meningitis frequently develops. Case-fatality estimates for inhalational anthrax are based on incomplete information regarding exposed populations and infected populations in the few case series and studies that have been published. However, case-fatality is extremely high, even with all possible supportive care including appropriate antibiotics. Records of industrially acquired inhalational anthrax in the United Kingdom before antibiotics were available reveal that 97% of cases were fatal. With antibiotic treatment, the fatality rate is estimated to be at least 75%. Though estimates of the impact of the delay in postexposure prophylaxis or treatment on survival can only be approximated, it has been suggested that, for each day of delay postexposure in initiating prophylaxis, the case-fatality rate increases by 5 to 10%.

Gastrointestinal anthrax: Severe abdominal distress followed by fever and signs of septicemia. This form of anthrax usually follows the consumption of raw or undercooked contaminated meat and is considered to have an incubation period of 1-7 days. An oropharyngeal and an abdominal form of the disease have been described in this category. Involvement of the pharynx is usually characterized by lesions at the base of the tongue, sore throat, dysphagia, fever, and regional lymphadenopathy. Lower bowel inflammation usually causes nausea, loss of appetite, vomiting and fever, followed by abdominal pain, vomiting blood, and bloody diarrhea. The case-fatality is estimated to be 25-60%, and the effect of early antibiotic treatment on that case-fatality is not defined.

Cutaneous anthrax: A skin lesion evolving from a papule, through a vesicular stage, to a depressed black eschar. This is the most common naturally occurring type of infection (>95%) and usually occurs after skin contact with contaminated meat, wool, hides, or leather from infected animals. Incubation period ranges from 1-12 days. Skin infection begins as a small papule, progresses to a vesicle in 1-2 days, followed by a necrotic ulcer. The lesion is usually painless, but patients also may have fever, malaise, headache, and regional lymphadenopathy. The case fatality for cutaneous anthrax is 20% without and 1% with antibiotic treatment.

III. Laboratory Information

Evaluation of possible anthrax infection for individuals not connected with the AMI incident in Florida should be performed through standard laboratory tests, following the Laboratory Response Network (LRN [1]) guidelines at http://www.bt.cdc.gov (follow the link for Resources: Agents/Diseases – *Bacillus anthracis*).

Hospitals in Indiana would be considered Level A LRN laboratories and, therefore, responsible for ruling out and presumptive identification of *B. anthracis*.

Presumptive identification criteria (level A LRN laboratory)

1. From clinical samples, such as blood, CSF, or skin lesion (eschar) material: encapsulated gram-positive rods
2. From growth on sheep blood agar: large gram-positive rods
3. Non-motile
4. Non-hemolytic on sheep blood agar

These guidelines provide background information and guidance to clinical laboratory personnel in recognizing *Bacillus anthracis* in a clinical specimen. They are NOT intended to provide training for laboratory identification of *B. anthracis*. Clinical lab personnel will most likely be the first ones to perform preliminary testing on clinical specimens from patients who may have been intentionally exposed to the organism and will play a critical role in facilitating rapid identification of *B. anthracis*. Laboratory confirmation of *B. anthracis* should be performed at the ISDH Public Health Laboratory.

Any suspected isolate of *B. anthracis* must be reported to the ISDH Public Health Laboratory IMMEDIATELY. The ISDH Public Health Laboratory is available for consultation or testing 24 hours per day and can be reached at 317-233-8000 during business hours or at 317-233-1325 during non-business hours.

[1] *Laboratory Response Network for Bioterrorism* (LRN) is a collaborative partnership and multilevel system designed to link state and local public health laboratories with advanced capacity clinical, military, veterinary, agricultural, water and food-testing laboratories. The LRN operates as a network of laboratories (laboratory levels designated A: hospital laboratories, B: state health laboratories, C: CDC laboratory, D: CDC and USAMRIID) with progressively stringent levels of safety, containment and technical proficiency necessary to perform the essential rule-out, rule-in, and referral functions required for agent identification. Network access provides all public health laboratories with the means to accept and transfer specimens to appropriate facilities where definitive testing can be undertaken. This facilitates early detection and **suspect-level** identification at the local clinical laboratory level, which is subsequently supported by more advanced capacity for rapid **presumptive and confirmatory-level testing** at state and large metropolitan public health laboratories. Further definitive characterization or highly specialized testing is provided by CDC, which serves as the national public health reference laboratory for major threat agents. The LRN consists of over 100 core and advanced capacity public health laboratories. In order to maintain network continuity, the respective State Public Health Laboratory Directors serve as the designated notification hub for maintaining operational integrity at the local level as well as communicating with CDC and FBI as appropriate.

Issues regarding the clinical use of threat agent assays: All of the biodetection assays and reagents utilized in the LRN, are intended for use in public health surveillance and the unique need related to the public health emergency, civilian biodefense and national security interests. These reagents are neither manufactured for commercial distribution nor provided for use in research purposes. An individual biodetection assay (and associated reagents) used in the standardized testing algorithm within the LRN should not be used to support a clinical diagnosis nor initiate a medical intervention without confirmation of the laboratory-based identification by another medically established diagnostic product or procedure.

HANDLING LABORATORY SPECIMENS **(possible *B. anthracis)***

- Risk to lab personnel from handling clinical lab specimens with B. *anthracis* is **low**, but it is important to minimize possible exposures to personnel as well as prevent contamination of the lab. Standard lab practices are sufficient. If *B. anthracis* is suspected, these precautions should be followed:
  - Wear gloves and protective gowns when handling clinical specimens.
  - Wash immediately with soap and water if there is direct contact with a clinical or lab specimen.
  - Avoid splashing or creating aerosols.
  - Perform lab tests in an annually certified Class II Biological Safety Cabinet; if that is not possible, then use standard lab protective eyewear and a mask.
  - Blood cultures should be maintained in a closed system (blood culture bottles).
  - Keep culture plates covered at all times; minimize exposure when extracting specimens for testing.
  - Work on a smooth surface that can be cleaned easily and wipe with bleach regularly.

- If lab or clinical specimen material is spilled or splashed onto lab personnel:
  - While still in the lab, remove outer clothing and place in a labeled, plastic bag.
  - Remove rest of clothing in the locker room and place in a labeled, plastic bag.
  - Shower thoroughly with soap and water in the locker room.
  - Inform your supervisor and physician.

- If exposure to contaminated sharps occurs:
  - Follow standard reporting procedures for sharps exposures.
  - Thoroughly irrigate site with soap and water and apply a disinfectant solution such as a 0.5% hypochlorite solution. DO NOT SCRUB AREA.
  - Promptly begin prophylaxis for cutaneous anthrax.
  - Recommended treatment for cutaneous exposure: prophylaxis with Ciprofloxacin 500 mg by mouth twice a day for 14 days or Doxycycline 100 mg by mouth twice a day for 14 days.
  - Notify the ISDH Epidemiology Resource Center at 317-233-7416 during business hours or at 317-233-1325 during non-business hours.

ROLE OF THE CLINICAL LABORATORY

- Perform laboratory tests for **presumptive** identification of *B. anthracis* on clinical specimens.

- Raise your index of suspicion for *B. anthracis* when the clinical picture (provided by the clinician) involves a rapidly progressive respiratory illness of unknown cause in a previously healthy person.

- IMMEDIATELY refer any suspected isolates to the ISDH Public Health Laboratory.

PRESUMPTIVE IDENTIFICATION FOR *Bacillus anthracis*

- Direct smears from clinical specimens
  - Encapsulated broad rods in short chains, 2-4 cells. India Ink will demonstrate capsule.
  - *B. anthracis* will not usually be present in clinical specimens until late in the course of the disease.

- Smears from sheep blood agar or other routine nutrient medium
  - Non-encapsulated broad rods in long chains
  - Encapsulated bacilli will only grow in nutrient agar supplemented with 0.8% sodium bicarbonate in the presence of 5% CO_2. (Note: This procedure is performed in Level B laboratories.)

- Gram stain morphology of *B. anthracis*
  - Broad, gram-positive rod: 1-1.5 x 3-5 µ
  - Oval, central to subterminal spores: 1 x 1.5 µ with no significant swelling of cell
  - Spores usually NOT present in clinical specimens unless exposed to atmospheric O_2

- Colonial Characteristics of ***B. anthracis***
  - *Bacillus anthracis* can be isolated primarily from blood, sputum, CSF, vesicular fluid or eschar, and stool (if gastrointestinal anthrax).
  - After incubation on a blood agar plate for 15-24 hours at 35-37^{o} C, well isolated colonies are 2-5 mm in diameter; heavily inoculated areas may show growth in 6-8 hours.
  - Gray-white, flat or slightly convex colonies are irregularly round, with edges that slightly undulate, and have "ground glass" appearance.
  - Often have comma-shaped protrusions from colony edge ("Medusa head" colonies)
  - Tenacious consistency (When teased with a loop, the growth will stand up like a beaten egg white.)
  - Non-hemolytic (Weak hemolysis may be observed under areas of confluent growth in aging cultures and should NOT be confused with real ß-hemolysis.)
  - Will not grow on MacConkey agar
  - Non-motile

- Presumptive Identification Key for *Bacillus anthracis*
  - Non-hemolytic
  - Non-motile
  - Encapsulated (requires India ink to visualize the capsule)
  - Gram-positive, sporeforming rod

- If *B. anthracis* is suspected
  - Immediately notify the health care provider, local law enforcement, and the local health department and the ISDH.
  - Once you have reason to suspect *B. anthracis,* do not perform further tests. The specimen should be transported to the ISDH as directed (see Packaging and Transporting Protocol).

DECONTAMINATION

- Effective sporicidal decontamination solutions
- Commercially available bleach, 0.5% hypochlorite (a 1:10 dilution of household bleach)
- Rinse off the concentrated bleach to avoid its caustic effects
- Surfaces and non-sterilizable equipment
  - Work surfaces should be wiped before and after use with a sporicidal decontamination solution
  - Routinely clean non-sterilizable equipment with a decontamination solution
- Contaminated instruments (pipettes, needles, loops, micro slides)
  - Soak in a decontamination solution until autoclaving
- Accidental spills of material known or suspected to be contaminated with *B. anthracis*

  For contamination involving fresh clinical samples:
  - Flood with a decontamination solution
  - Soak five minutes before cleanup

  For contamination involving lab samples, such as culture plates or blood cultures, or spills occurring in areas that are below room temperature:
  - Gently cover spill, then liberally apply decontamination solution
  - Soak for one hour before cleanup
  - Any materials soiled during the cleanup must be autoclaved or incinerated

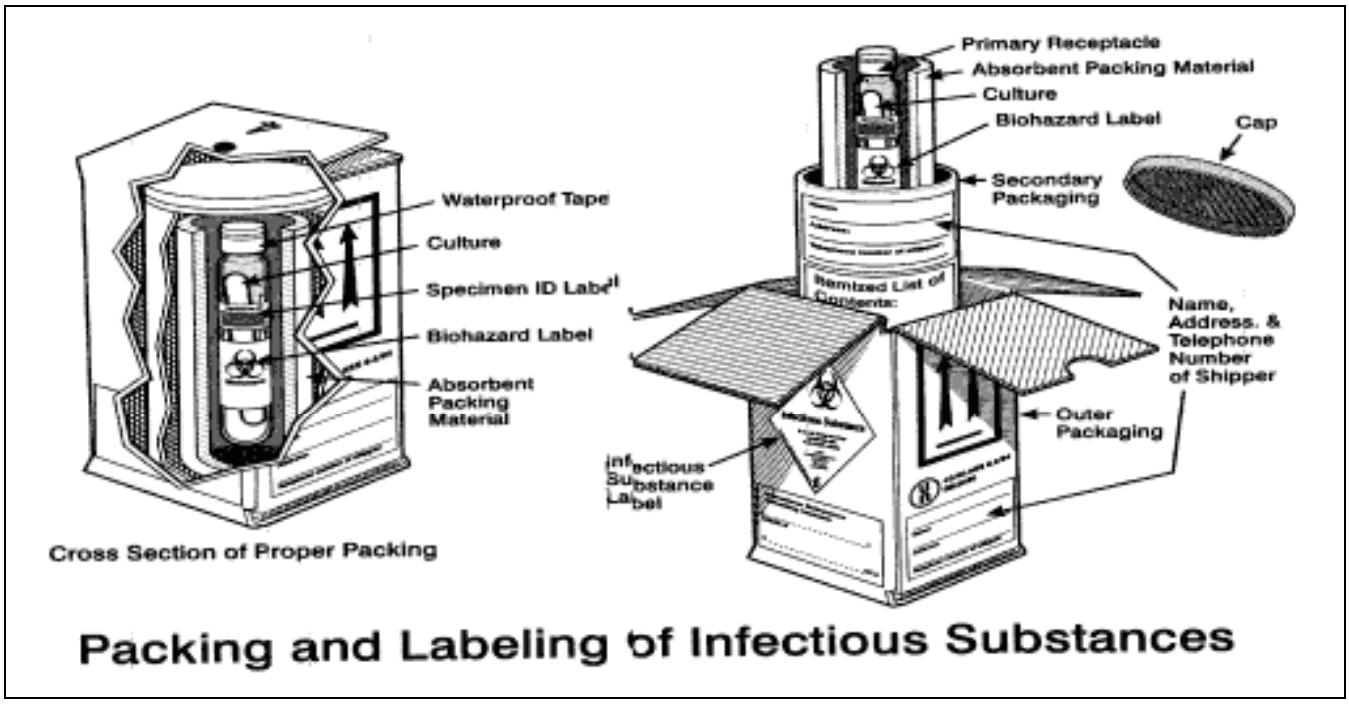
DISPOSAL

- Incinerate or steam-sterilize cultures, infected material, and suspect material

PACKAGING and TRANSPORTING PROTOCOL

NOTE: Submission of suspicious packages/letters is handled in a different manner. Please refer to the guidelines for handling suspicious packages/letters which can be found at http://www.in.gov/isdh/healthinfo/package.pdf, and elsewhere in this issue of the newsletter.

- Packaging and labeling of specimens is the same as for any other infectious substance:
  - If the specimen is a dry powder or paper material, place it in a plastic zip-lock bag, and place biohazard label (see diagram).
  - If the specimen is a clinical specimen, place biohazard label on the specimen receptacle, wrap the receptacle with an absorbent material (see diagram).
  - Place the bag or specimen receptacle into a leakproof container with a tight cover that is labeled "biohazard".
  - Place this container into a second leakproof container with a tight cover that is labeled "biohazard". The size of the second container should be no larger than a one-gallon paint can.
  - For a clinical specimen, an ice pack (not ice) should be placed in the second container to keep the specimen cold.
  - If the specimen is not a clinical specimen, but is paper or powder, omit the ice pack.
  - Place the second container into a third leakproof container with a tight cover that is labeled "biohazard". The third container should be no larger than a five-gallon paint can.
  - Both containers should meet state and federal regulations for transport of hazardous material, and be properly labeled.



- Transporting laboratory and clinical specimens to the ISDH Public Health Lab:
  - Will be coordinated with the ISDH Public Health Lab at 317-233-8000 during normal business hours and 317-233-1325 after hours.
  - Local FBI personnel may be utilized to transport specimens if bioterrorism is suspected.
  - In cases where the specimen is shipped by commercial carrier, ship according to state and federal shipping regulations.

Training Room

Foodborne Illness Investigation Manual Training

A new manual for local health departments was developed last year by staff in the Epidemiology Resource Center and the Food Protection Program. The manual, titled "Foodborne Illness Investigation Reference Manual", is directed toward food safety specialists and public health nurses who investigate foodborne illness outbreaks at the local level. Several training sessions were offered throughout the summer and fall of 2000.

In order to keep up with turnover, ISDH staff will again sponsor three additional trainings for local health department personnel. The schedule is as follows:

November 29th, 2001	**Holiday Inn, Michigan City**
December 6th, 2001	**ISDH Rice Auditorium**
December 13th, 2001	**Holiday Inn, Jasper**

The programs will begin at 9:30 a.m. and end at 2:30 p.m. The topics will include disease agents, complaint and sample collection and investigation of an outbreak. The training is designed to explain the purpose and the use of the manual in an outbreak situation. Although the programs are being held for new employees, ISDH personnel or anyone needing a refresher may also attend the sessions. There is no cost for the training session, and those interested in travel reimbursement should contact the ISDH Local Liaison Office at (317) 233-7679. **To register, please contact Tara Renner, Food Protection Program, at (317) 233-7337 or trenner@isdh.state.in.us**.

Conferences and Seminars

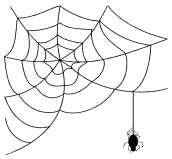
The Indiana State Department of Health has scheduled 3 "Fall Awards" Conferences. These conferences are for those health care workers who provide immunization services. The dates/locations are:

October 22, 2001	**October 24, 2001**	**October 26, 2001**
Holiday Inn City Center	**Holiday Inn**	**Greenwood, IN**
South Bend, IN	**Jasper, IN**	**Valle Vista Conference Center**.

Speakers include: William Atkinson, MD, MPH of CDC (Jasper site only); Donna Weaver, MSN, of CDC (all 3 sites); James Conway, MD, IU Medical School Pediatrics (South Bend); Paul Kwo, MD, IU Medical School Gastroenterology/Hepatology (Greenwood); and Charlene Graves, MD, ISDH. Topics will include vaccine administration techniques, Hepatitis ABC's, Varicella, Vaccinations, and Foreign Born Individuals, Immunizations, Spanning the Age Groups, and other immunization-related topics.

The target audience includes physicians, residents, nurses, nurse practitioners, school nurses, physician's assistants, pharmacists, and any health care personnel who either give or schedule immunizations, or who set policy for their offices, clinics, and for communicable disease and infection control programs. The conferences are free, but **REGISTRATION IS REQUIRED**.

For more information on registration, contact Beverly Sheets, RN at 317-501-5722. To request a Registration form, you may contact ISDH at 317-233-7004.



Wonderful Wide Web Sites

ISDH Data Reports Available

The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:

http://www.statehealth.IN.gov (under Data and Statistics)

Indiana Cancer Incidence Report (1990, 95,96)

Indiana Cancer Mortality Report (1990-94, 1992-96)

Indiana Health Behavior Risk Factors (1995-96, 97, 98,99)

Indiana Hospital Consumer Guide (1996)

Indiana Marriage Report (1995, 96, 97)

Indiana Mortality Report (97,98,99)

Indiana Natality Report (1995, 96, 97)

Indiana Natality/Induced Termination of Pregnancy/Marriage Report (1998, 1999)

Indiana Report of Diseases of Public Health Interest (1997, 98, 99)

HIV Disease Summary

Information as of September 30, 2001 (based on population of 5,840,528)

HIV - without AIDS to date:

368	New cases from October 2000 thru September 2001	12-month incidence	6.30 cases/100,000
3,440	Total HIV-positive, alive without AIDS on September 30, 2001	Point prevalence	58.90 cases/100,000[1]

AIDS cases to date:

336	New AIDS cases October 2000 thru September 2001	12-month incidence	5.75 cases/100,000
2,853	Total AIDS cases alive on September 30, 2001	Point prevalence	48.85 cases/100,000[1]
6,355	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in September *MMWR* Weeks 36-39		Cumulative Cases Reported January - September *MMWR* Weeks 1-22	
	2000	2001	2000	2001
Campylobacteriosis	63	56	447	354
Chlamydia	1,100	1,025	10,246	11,032
E. coli O157:H7	17	9	99	65
Hepatitis A	22	12	73	77
Hepatitis B	5	2	41	37
Invasive Drug Resistant *S. pneumoniae* (DRSP)	11	8	161	143
Gonorrhea	524	491	4,742	4,653
Legionellosis	4	1	30	16
Lyme Disease	2	1	21	18
Measles	0	0	0	4
Meningococcal, invasive	1	3	28	33
Pertussis	16	17	78	63
Rocky Mountain Spotted Fever	0	0	2	2
Salmonellosis	84	49	494	410
Shigellosis	159	13	1,292	170
Syphilis (Primary and Secondary)	22	4	277	124
Tuberculosis	15	9	100	79
Animal Rabies	0	2	0	3 (2 Bats, 1 Dog)

For information on reporting of communicable diseases in Indiana, call the *ISDH Communicable Disease Division* at (317) 233-7665.

Indiana
Epidemiology
Newsletter

The *Indiana Epidemiology Newsletter* is published by the Indiana State Department of Health to provide epidemiologic information to Indiana health professionals and to the public health community.